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CURRENT LITERATURE.

Embryology of the Amentiferæ.

A recent paper¹ upon this subject, by Miss Margaret Benson, contains some remarkable results. Embryologists have long looked hopefully at the Amentiferæ as a possible fruitful field for the discovery of certain homologies of the phanerogamic embryo-sac. The results here recorded have been obtained from work that has been going on since 1891, in the botanical laboratory at Cambridge, at the suggestion of Professor Oliver. The material was difficult to obtain in the right stages and much time elapsed before satisfactory results could be obtained. The present paper is but preliminary and fragmentary, but it contains results that deserve announcement. British forms of *Fagus*, *Castanea*, *Quercus*, *Betula*, *Alnus*, *Corylus* and *Carpinus* are considered. A comparison is instituted with Treub's results with *Casuarina*, indicating the close affinity of that genus with the Amentiferæ. Treub, it will be remembered, considered the chalazal entrance of the pollen-tube a fact of sufficient importance to set off the chalazogams (represented by *Casuarina*) against all other phanerogams (porogams). It now seems that *Alnus*, *Betula*, *Corylus* and *Carpinus* are also chalazogams. The adaptations to this chalazal entrance are well pointed out. Other striking similarities are to be found in the development in the Amentiferæ of genuine "sporogenous tissue" in the nucellus, several similar contiguous cell-strands, from which one or more embryo-sacs are developed; and in the prevalence of cæca formed by the embryo-sac (tails of macrospores) which serve for the unimpeded pathway of the pollen-tube up the nucellus, as in *Casuarina*, or forage for the needs of the embryo, as in *Fagus*. It is a question for which of these purposes the cæca were originally acquired. In *Castanea*, also, there is a somewhat inconstant development of tracheids around the base of the embryo-sac, as in *Casuarina*, taken to suggest some ancestral organ. The remarkable branching and resting stage of the pollen-tube found in the group is also suggestive of *Casuarina*. No intimation as to the homologies of the antipodal cells or as to the nuclear fusion of the embryo-sac was obtained. The group is evidently one worthy of exhaustive study, and likely to bring us somewhat nearer the solution of the problem as to the genesis of phanerogams.

¹BENSON, MARGARET. Contributions to the embryology of the Amentiferæ, Part I. Reprint from Trans. Linn. Soc. II. 3: 409-424. 6 pl.

Minor Notices.

A LIST of the vascular flora of Rensselaer county, N. Y., has been published by Drs. H. C. Gordinier and E. C. Howe. The list enumerates 1345 species and varieties. The first list of the county was prepared by Professor Amos Eaton and Dr. George Marvin in 1819, under direction of the Troy Lyceum.

ANOTHER BULLETIN devoted to the "Russian thistle" (*Salsola Kali* tragus) has just been issued by the Department of Agriculture, having been prepared by Mr. L. H. Dewey of the Botanical Division. It gives an account of the introduction and spread of this weed, and suggests remedies. The map of present distribution shows that the Dakotas and Nebraska are chiefly infested, but dangerous looking patches are beginning to appear in Minnesota and Iowa.

A VALUABLE work for lichenologists is vol. I of "British Lichens" by Rev. Jas. M. Crombie, A. M. It forms the first half of a monograph of British lichens based on the collections contained in the British Museum. The large number of type specimens, not to be found elsewhere, and the very full collections from all parts of the British Isles have enabled the author to make his work unusually complete and valuable. The distribution of species is given very fully. A series of about seventy-five figures illustrate the general structure of the sixty-six genera described. The second volume is promised for next year.

THE FIRST PART of a preliminary revision of North American Cactaceæ by Dr. John M. Coulter has been issued by the Department of Agriculture. The work has been in hand since 1890, and has been conducted, with the help of various assistants, in the field, in the Engelmann collection of notes and types, and in the study of all accessible American collections. The nature of the material and the frequent loss of types have made the study exceedingly difficult; while the numerous garden names and descriptions of the older writers have made an inextricable synonymy. The Mexican boundary is disregarded, and all species that have come under observation and are reasonably certain are included. The present part contains three genera: *Cactus*, replacing the generic name, *Mamillaria*, under which 64 species and varieties are defined, twelve of which are new; *Anhalonium*, with 4 species; and a new genus, *Lophophora*, proposed for *Echinocactus Williamsii*, with a species and variety. Geographical distribution is discussed, so far as meager information will allow, and a handy artificial key is provided for the species of *Cactus*. The numerous notes left by Dr. Engelmann, including descriptions of unpublished species, have added greatly to the value of the revision.